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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,337	06/25/2003	Zhong YI. Ding	2003B065	8002

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EXXONMOBIL CHEMICAL COMPANY
5200 BAYWAY DRIVE
P.O. BOX 2149
BAYTOWN, TX 77522-2149

EXAMINER

BULLOCK, IN SUK C

ART UNIT PAPER NUMBER

1764

DATE MAILED: 11/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,337

Applicant(s)

DING ET AL.

Examiner

In Suk Bullock

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/25/03 & 1/31/05</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 1-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lattner et al. (6,838,578) in view of Miller et al. (6,403,854).

The Lattner et al. reference teaches a method for removing oxygenated components such as CO₂ and water from oxygenate to olefin conversion effluent stream. The process comprises: (1) contacting an oxygen-containing feed with a molecular sieve catalyst to produce an olefin stream comprising methane, ethylene, propylene, acetaldehyde, C₄₊ olefins, water, and other hydrocarbon components; (2) quenching the olefin stream with a quench medium in a quench tower and withdrawing a substantial amount of water as a bottoms stream and olefin vapors as an overhead stream; (3) sending the overhead stream to a distillation column and withdrawing acetaldehyde, C₄₊ olefins and methanol as a bottoms stream; (4) sending an overhead olefin vapor comprising methane, ethylene, propylene and other lower boiling point material from the distillation column to a caustic wash column; (5) using a caustic solution to remove CO₂ from the olefin vapor; and (6) treating the reduced CO₂ olefin vapor to separate out the olefin components. See col. 18, line 23 to col. 19, line 17 and Figure 1. The olefin components recovered from the process can be polymerized to produce polyolefins (col. 17, lines 43-57). The quench medium is a recycle stream of water removed from the quench tower (col. 14, line 54 to col. 15, line 5). A caustic solution includes alkaline compounds such as sodium hydroxide and potassium hydroxide (col. 16, lines 1-29).

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The Lattner et al. reference does not teach the step of combining at least a portion of the alkaline stream with the quench medium as called for in step c of claim 1.

The Miller et al. reference teaches a method for removing impurities from oxygenate to olefin effluent stream comprising injecting a neutralization material into a first quench tower to neutralize organic acids present in the effluent stream. An aqueous stream (comprising organic acids, water, oxygenates, and catalyst fines) is removed from the quench tower bottoms and a portion of the aqueous stream is returned to the tower. The neutralization material comprises caustic. See col. 9, lines 10-22 and col. 10, lines 14-49. A portion of purified water stream from a second quench tower is sent to the first quench tower as a make up stream (col. 11, lines 26-28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Lattner et al. by adding the step of sending a combined stream of caustic and a quench medium to the quench tower as taught by Miller et al. because such a step would remove impurities such as organic acids which are by-products of OTO process. Also, Miller has taught by removing organic acids at this early stage of the process, corrosion and fouling problems would be mitigated down the process scheme (col. 9, lines 16-19).

Lattner does not specifically disclose the pH of the quench medium. However, in view of Miller et al. disclosure of returning a combined stream of caustic and a quench medium to remove organic acids in the first quench tower,

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it is within the level of a skilled artisan to determine the effective pH to achieve desired results.

With respect to the claimed Wt% of carbon dioxide and water removed from the process, since the process of Lattner et al. is similar to the claimed invention, it is expected that the level of carbon dioxide and water removed would be within the claimed range.

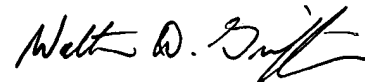
With respect to the claimed alcohol and methanol contained in the reactor effluent, it is well known in the OTO art that the process produces by-products such as alcohol and methanol. It is also well known in the art that the OTO process contains some minor amounts of unreacted reactant such as methanol.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to In Suk Bullock whose telephone number is 571-272-5954. The examiner can normally be reached on Monday - Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Walter D. Griffin
Primary Examiner

I.B.